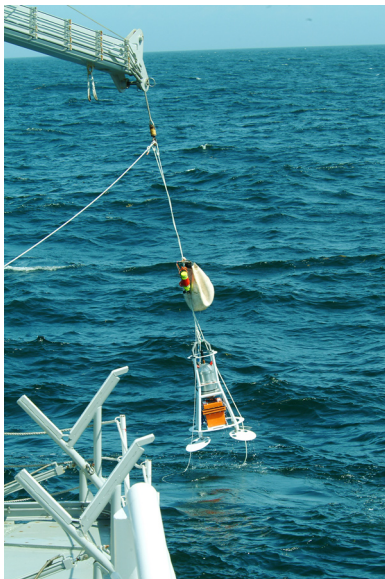




## Technology Opportunity

# Passive Acoustic Monitoring and Location System for Fish and Other Underwater Sound Sources

The National Aeronautics and Space Administration (NASA) seeks cooperative research opportunities using the Passive Acoustic Monitoring and Location System for Fish and Other Underwater Sound Sources developed at the John F. Kennedy Space Center (KSC), FL. The term "Passive Acoustic Monitoring Systems" (PAMS) describes a developmental sensing-and-data-acquisition systems for recording underwater sounds. PAMS is the first deep-sea instrumentation design to provide a capability for studying soniferous marine animals (especially fish) over a wide depth range and enables a variety of undersea missions using a variety of sensors. The sounds (more precisely, digitized and preprocessed versions from acoustic transducers) are subsequently analyzed by a combination of data processing and interpretation to identify and/or, in some cases, to locate the sources of those sounds.



## Potential Commercial Uses

- Marine Biologists
- Fishery Management Companies
- Navy and Coast Guard
- Homeland Security

## Benefits

- Pressure Housing Reduces Corrosion and Noise
- Easily Deployable
- Self-Contained Acoustic Data Acquisition Unit
- Stable Bottom Positioning on Ocean Floor

**Explore. Discover. Understand.**

## The Technology

PAMS operates with a combination of advanced sensing, packaging, and data processing features from proven marine instrumentation systems. Interpretation of acoustic data can include visual inspection of power-spectrum plots for identification of spectral signatures of known biological species or artificial sources. Additionally, data analysis could include determination of relative times of arrival of signals at different acoustic sensors arrayed at known locations.

PAMS is packaged as a battery-powered unit, mated with external sensors, that can operate in the ocean at any depth from 2 m to 1 km. A PAMS includes a pressure housing, a deep-sea battery, a hydrophone, an external monitor and keyboard box, and can optionally include temperature probes and/or underwater cameras. Currently, the PAMS can be deployed at sea for four days, but the deployment time and sampling rates are battery and hard drive dependent.

## Options for Commercialization

NASA seeks qualified companies to commercialize the Passive Acoustic Monitoring and Location System for Fish and Other Underwater Sound Sources technology. This and other technologies are made available by the KSC Technology Transfer Office. NASA transfers valuable technology to industry through patent and copyright licenses, cooperative agreements, and reimbursable and nonreimbursable Space Act Agreements.

## Contact

If your company is interested in the Passive Acoustic Monitoring and Location System for Fish and Other Underwater Sound Sources technology or if you desire additional information, please reference Case Number KSC-12634 and contact:

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### Commercialization Checklist

- Patent Pending
- U.S. Patent
- Copyrighted
- Available to License
- Available for no-cost transfer
- ✓ Seeking industry partner for further codevelopment